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## **HEIBus Project**

# **WORK PACKAGE 2: Best practices of HEI- company cooperation**

## **Deliverable 2.1**

### **Student company cooperation models**

February 2017



<b>WP2</b>	<b>D2.1. Student company cooperation models</b>
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## 1. Introduction

The goal of this document is to present an analysis of methods or models where students are directly involved in cooperation with companies, for example solving real life problems of companies, practical trainings, projects, theses, etc. All methods found throughout the world are listed and reported. Finally, five models are selected for deeper analysis. Analysis includes a detailed description of the selected models and conclusions.

## 2. Definitions and previous concepts

Currently, universities and companies around the world are experiencing a renewed interest in strengthen their forms of cooperation. It has been proven that bridging the gap between universities or High Education Institutions (HEIs) and companies benefits both parties. On one side, students gain work experience, related to their education, what improves their motivation to study and develop attitudes such as greater self-confidence and self-awareness. On the other side, companies are involved in the learning process shaping the potential employee according to the company mission and vision.

Cooperation between HEIs and companies is not a new concept. Indeed, there are cooperation programs which dates back to the first decade of the twentieth century [1] or well-known internationally that has served as reference model [2]. However, integrating working life in the learning process have their detractors. They place strong emphasis on exploitative internships and non-enriching job in which students are not engaged in productive work but just observing. To tackle this problem, there are associations such as Canadian association for cooperative education **CAFCE** [3], Cooperative Education & Internship Association (**CEIA**) [4] and German Central Evaluation and Accreditation Agency (**ZEVA**) [5] that guarantee the quality of cooperation agreements.

The mechanisms offered by universities to provide students with the opportunity to gain work experience, in their career fields, are included in the generic concept of **Work Integrated Learning (WIL)** [6]. According to the definition adopted by the Higher Education Quality Council

of Ontario [7], Work-integrated learning is the process through which students come to learn from experiences in educational and practice settings. It includes the kinds of curriculum and pedagogic practices that can assist, provide, and effectively integrate learning experiences in both settings. Depending on the context, the term WIL is often used interchangeably with other, similar terms such as “work-based learning,” “practice-based learning,” “work-related learning,” “vocational learning,” “experiential learning,” “co-operative education,” “clinical education,” “internship,” “practicum,” and “field education” [8]. However, many of these terms are also used to describe specific types of work-integrated learning. The most widespread types of WIL are:

- **Cooperative education** is a structured method of combining classroom-based education with practical work experience. Co-op experience provides academic credit for structured job experience. There can be: (1) full-time experiences (40hours per week) in alternating periods (semester, quarter) of work and school; (2) part-time experiences (20hours per week) combining work and school during the same time period. This can be repeated in multiple times in the same company, or in different companies and normally implies extend a year or more to the students’ university career. As a general rule, co-op experiences are paid and supervised by a professional. Cooperative education is designed by Germany and other German speaking countries as **Dual System model at HEIs** [9]. Moreover, common sectors in which co-op is applied are: engineering, business, IT, computer science, health sciences; tourism, applied/physical sciences, math, arts and social sciences.

- **Internship** is an experience involving student’s working in their expected career field, either during a semester or over the summer (could be longer) and normally occurs at the end of a program study. Internships may be paid or unpaid and may or may not carry academic credit. Workplace supervisors are encouraged to mentor students as they participate in meaningful work or engage in job shadowing. Typically, they are less structured than co-operative education. This program is common in engineering, marketing, business and social science sector.

- **Apprenticeship** is a combination of in-school training for a skilled trade or occupation, and on-the-job working training. Generally combines four levels of classroom training alternating with on-the-job training, usually over a minimum of four years. Most of the learning is done in

the work place and comprises approximately 80—85% of the training. The remainder of the training is provided in the classroom at a college or polytechnic, online, or with a private trainer. This type of cooperation is mainly included in services, motive power, industrial, construction sectors.

- **Field experience** is a work-related experience that prepares students for professional or occupational fields, but is not required for a professional license. Common sectors in which this model is included are business, tourism, health sciences, journalism.

- **Mandatory professional practice** deals with work arrangements required for a professional license or designation. Students participate in activities that are considered core to the curriculum and necessary for successful completion of the program, and are closely monitored by individuals working on behalf of the institution [8]. Common sectors where coexist this type of WIL are education and health science.

- **Applied research learning** consists on activities where students take part on real-world projects, often with industry partners as clients, and the students as service providers. It is common throughout the humanities, social sciences, and sciences, and it involves students tackling real-world projects.

- **Service learning** is a range of activities intended to provide equal benefit to the service provider (the student) and the recipient (the community) while maintaining a focus on learning. It is integrated into the program of study but it has been proved that may be more effective if undertaken on a voluntary basis [10]. Common sectors for service learning are: arts, business, health; social services, education, environmental studies; social sciences.

This document takes, as starting point, these concepts to design a framework in which ways of **cooperation**, between **HEIs and companies on a worldwide level**, are classified. Next section enumerates 10 ways of cooperation between HEIs and companies, defined as models, which fall into four categories.

### 3. Good models

In the endeavor to find successful cooperation models, four categories have been defined. These categories consider the way of cooperation between HEIs and companies, the goal of this cooperation, and focus only on the common types utilized in science and engineering studies.

Hence, models where cooperation follows what it is known as cooperative education and the students have the possibility of working in several companies, fall into the first category, ***basic co-op educational models***.

Second category, ***company specific co-op educational model***, comprises models in which the student does the training in one company and also could be categorized as co-op model.

Third category, ***internship company model***, includes those models in which students are hired by the university and work in one or several companies, what it is defined as internship. In addition, models within this category solve problems demanded by the company that will be utilized in the short term, or work in a specific task.

Finally, the fourth category, ***internship research model*** comprises cooperation models considered as an internship but the result of this cooperation will be applied in the long term. Here, students are hired by a HEI research group, or a university spin-off and take part in a project, which outcomes will be utilized by the company in the long-term.

#### 3.1. Basic co-op educational models

Models, within this category, share the main common features detailed in Table 1.



Table 1: Main features of basic co-op educational models

Feature	Description
<b>Main educational purposes</b>	integration of theory and practice; career exploration and development; progressive skill acquisition; professional socialization; workplace literacy; workforce readiness
<b>Duration</b>	Work terms are normally one semester (4 months) but may be consecutive; minimum 3-6 work terms required for co-op designation
<b>Compulsory/Optional</b>	Both
<b>Paid /no Paid</b>	Companies paid student a salary/scholarship
<b>Role of student</b>	Full-time employee engaged in productive work
<b>Role of employer</b>	Supervision, evaluation
<b>Role of institution</b>	Set learning objectives and approve host site; assist with student selection; monitoring and assessment
<b>Companies for work placement</b>	Several

There are a large number of universities following this way of cooperation. Generally, these institutions have a long tradition and experience cooperating with companies and, in occasions, their programs have been certified by associations or agencies such as CAFCE or ZEvA. Now, four models in this category are described:

- Model 1 (M1). This model is followed by European universities whose programs have been certified by an agency of association. One example is the Duale Hochschule Baden-Württemberg [11]. In this university, students, within their three-year studies, regularly switch between the university and the company/social institution that provides their workplace training. The training takes place by three-month rhythm.
- Model 2 (M2). This model is followed by European universities whose programs have not been certified. The Mechatronic Plus is an example of M2 offered by the Hochschule Esslingen in the department of Mechatronics [12]. In this case, career duration is 3.5 years and approximately near to a year students work at company.
- Model 3 (M3). Canadian or USA universities whose programs have not been certified are included in M3. One example is the Cornell University (USA) [13] where





students work for pay, a minimum of 28 weeks, and no academic credit is provided.

This university also offers Co-op summer sessions.

- Model 4 (M4). This model is followed by USA or Canadian universities whose programs have been certified by an agency of association. One example is the University of Waterloo [14], which was the first in Canada offering a cooperation program, being a point of reference to more than 100 colleges and universities across Canada.

Other geographical areas have not been included, as their models have been inherited from European, Canadian, or USA universities.

### 3.2. Company Specific co-op educational model

Company specific co-op has common features with the previous type, illustrated in Table 1. In addition, models included in this category fulfill two criteria. First, student have to finish the co-op work only in one company. Second, companies may or may not have co-op programs with more than one university (no exclusivity is requested). Three different models have been considered in this category:

- Model 5 (M5). This model includes European or Canadian or USA universities with cooperation programs with companies located in their geographical region. One example could be found at Hochschule Esslingen in the department of Mechatronics, Mechatronics Com program groups companies' specific co-ops such as SpeedUp program in BMW [15]. Concretely, SpeeUp co-op model by BMW has a three University partners: Hochschule Deggendorf in Bachelor of Engineering (Elektro- und Informationstechnik); Hochschule Esslingen in Bachelor of Engineering (Mechatronik und Elektrotechnik) and Hochschule Ingolstadt in Bachelor of Science (Flug- und Fahrzeuginformatik). During the standard period of study, hands-on practical experience totaling 12 months needs to be attained. Another example is the Lockheed Martin Work Experience Program between Lockheed-martin Company and University of Central Florida [16].
- Model 6 (M6). This model includes European companies with a certified cooperation program with universities from another geographical region. One example is SCETA (Siemens Canada Engineering and Technology Academy) which follow Dual Education Program [17]. Students attend an enhanced co-op program at Siemens Canada during their final two years of university/college, during



established academic co-op terms. Currently it has five partners being three of them universities: University of Waterloo, McMaster University and University of Alberta.

- Model 7 (M7). This model includes USA or Canadian companies with cooperation programs with European universities. An example is the Intel company which has cooperation programs with European universities located in: Germany [18], Ireland [19] or Finland [20], among others.

### 3.3. Internships company model

Models included within this type are defined by the features shown in Table 2. Basically, internships may be offered by companies, central government, municipalities or other organizations. Workplace supervisors are encouraged to mentor students and may be completed for academic credit.

*Table 2: Main features of internship educational models*

Feature	Description
<b>Main educational purposes</b>	Integration of theory and practice; personal development; career exploration and development; professional socialization
<b>Common sectors</b>	Business; marketing; social sciences; engineering
<b>Duration</b>	Typically long (12—16 months) but may be shorter
<b>Compulsory/Optional</b>	Normally optional but may be a compulsory part of some programs
<b>Paid /no Paid</b>	Both
<b>Role of student</b>	Full-time or part-time employee engaged in productive work; may be observer
<b>Role of employer</b>	Mentoring, Supervision, evaluation
<b>Role of institution</b>	Assessment

Two models have been considered:

- Model 8 (M8). Internship with companies located in the same geographical region. One example is the FH Vorarlberg University of Applied Sciences (Electrical Engineering Duals BSc) internship program [21]. Students begin their professional career already by their third semester. Concretely, students have compulsory four professional Internships (in total 36ECTS from 180): the first two Internships: require an evaluation of the work placement terms. The successful completion of the practical specialization will be evaluated by the dual supervisors in the partner



company based on a list of criteria defined at the beginning of the work term. This evaluation is included in the grading of work-based learning Professional Internship 1 and 2 by the supervisor at Vorarlberg University of Applied Sciences (FH Vorarlberg). Students must receive a passing grade in these modules. Regarding with the other two mandatory Internships, students prepare two bachelor's theses. These involve preparing and documenting a problem from the work-based training according to scientific criteria. Successful completion of both theses is a requirement for approval to write the final bachelor's board examination.

- Model 9 (M9). Internship with companies located in different geographical region. One example is the University of Saskatchewan Engineering Professional Internship Program [22]. Engineering students have the option of completing a full-time paid internship. The internship is a minimum of eight months. Prior to beginning the internship, interns attend a required orientation session. During the internship a faculty supervisor is assigned to each intern to provide guidance, support, and reporting feedback, and four technical reports and employer evaluation forms are submitted throughout the internship.

Another example is The University of New South Wales offers the UNSW Co-op program [23] where different careers, including Engineering, are available. Students begin their professional career already by third semester. In this Co-op program, students have also compulsory four professional internships in a 5 years career (Appendix 3 of [23]).

### 3.4. Internships research model

Internships research model has the same common features, as internship company models, with the particularity that they offer the opportunity to students being involved in research projects.

- Model 10 (M10). Internships in which students cooperate in research projects. An example is the University of Jaén (Spain), which offers different ways of collaboration between students and companies [24]. Depending on the graduate program, there are both mandatory curricular, optional curricular and extracurricular internships. The particular model analyzed here addresses the case when students are involved to work in real industry problems via their collaboration with a research group in a knowledge transfer project.



In this model, the student does not collaborate directly with the company, but with a research group, or a spin-off, working on a transfer knowledge project with that company.

## 4. Models for deeper analysis

For the former 10 good models, five of them have been chosen for a deeper analysis. In the following subsections first, the selection criteria is presented, then a deeper analysis of the chosen models is done and finally the assessment.

### 4.1. Selection of Models

In order to select the five best good models we have given importance to two main features: internationalization and accreditation. Internationalization is when the model has any type of interaction with institutions or companies located in different countries. Accreditation is also considered as a crucial feature as it assures the quality of the WIL. In fact, some benefits of certified models are:

- Student are engaged in productive work rather than just observing.
- Students receive some form of remuneration for their work.
- Student progress is monitored by the institution (university or company).
- Performance is evaluated by an employer.
- The total amount of co-op experience totals 50% of the time spent in academic study, and no less than 30%.

Table 3 shows how the former ten good models satisfy, or not, the mentioned features. In this table, the selected five models are highlighted: two basic cooperation models (both certified and with internationalization); one company specific co-op model and two internships.

Table 3: Selection of Models

Models	Features			
	Model Type	Location	Internationalization	Accreditation
<b>M1</b>	<b>Basic co-op</b>	<b>Germany</b>	<b>YES</b>	<b>ZEvA</b>
M2	Basic co-op	Germany	NO	--
M3	Basic co-op	USA	YES	--
<b>M4</b>	<b>Basic co-op</b>	<b>Canada</b>	<b>YES</b>	<b>CAFCE</b>
M5	Company Specific co-op	Germany	NO	--
<b>M6</b>	<b>Company Specific co-op</b>	<b>Germany</b>	<b>YES</b>	--
M7	Company Specific co-op	USA	YES	--
M8	Internship Company	Germany	NO	--
<b>M9</b>	<b>Internship Company</b>	<b>Australia</b>	<b>YES</b>	--
<b>M10</b>	<b>Internship Research</b>	<b>Spain</b>	<b>NO</b>	--

## 4.2. Deeper analysis

Tables 4 to 8 show the deeper analysis for the previous selected models.

Table 4: Assessment of M1

Model ID	M1
Public/Private University	Public University
Stage	Along all career in three-month rhythm
Compulsory / Optional	Compulsory
Paid / Not paid	Students and the employers conclude a contract for a three year term within this contract the students receive a regular compensation, including social security benefits.
Student proposal / HEI proposal / Company proposal	The program has partner companies involved that offer work placement opportunities. We have not found details on the assignment process between students and companies.
HEI tutor role / Company tutor role and department	During the work placement, a company representative is responsible for the day-to-day supervision. There is a HEI tutor responsible for the general coordination of the work placements.
Duration	Three months each semester from the second year to the fourth
Who pays the student tuition?	Companies
Does the company provide a work place for the student?	Yes
Does the company have a contract with the students, or an agreement to hire the	There is no obligation for any of the parties.



students when they complete their studies?	
Is the company involved throughout the whole formative period?	Yes.

Table 5: Assessment of M4

Model ID	M4
Public/Private University	Public University
Stage	Semester 2 or Semester 3-4
Compulsory / Optional	Compulsory
Paid / Not paid	Paid
Student proposal / HEI proposal / Company proposal	Student proposal and Company proposal
HEI tutor role / Company tutor role and department	During the work placement, a company representative is responsible for the day-to-day supervision. There is a HEI tutor responsible for the general coordination of the work placements.
Duration	Students may have four to six, four-month work terms included in their curriculum (16-24 months).
Who pays the student tuition?	Companies
Does the company provide a work place for the student?	Yes
Does the company have a contract with the students, or an agreement to hire the students when they complete their studies?	There is no obligation for any of the parties.
Is the company involved throughout the whole formative period?	Yes.

Table 6: Assessment of M6

Model ID	M6
Public/Private University	There are as partners Public Universities but this is promoted by private sector
Stage	First two years [25]
Compulsory / Optional	Compulsory
Paid / Not paid	Paid by company as full time hire. The remaining two years of academic tuition is also paid
Student proposal / HEI proposal / Company proposal	Company proposal
HEI tutor role / Company tutor role and department	During the work placement, a company representative is responsible for the day-to-day supervision. There is a HEI



	tutor responsible for the general coordination of the work placements.
Duration	Two years
Who pays the student tuition?	Companies
Does the company provide a work place for the student?	Yes
Does the company have a contract with the students, or an agreement to hire the students when they complete their studies?	We have not found details on it.
Is the company involved throughout the whole formative period?	Yes.

Table 7: Assessment of M9

Model ID	M9
Public/Private University	Public University
Stage	The work placements take place in different stages during the degree. See Appendix I of [23]
Compulsory / Optional	All of the work placements are compulsory, however, no marks are awarded to the students
Paid / Not paid	The students receive a scholarship, so they are not directly paid by the companies. However, there is a possibility for the companies to compensate additional expenses incurred by the students
Student proposal / HEI proposal / Company proposal	The program has sponsor companies involved that offer work placement opportunities. We have not found details on the assignment process between students and companies.
HEI tutor role / Company tutor role and department	During the work placement, a company representative is responsible for the day-to-day supervision. There is a HEI tutor responsible for the general coordination of the work placements.
Duration	From 9 to 18 months, depending on the specific program
Who pays the student tuition?	The university offers a scholarship which, in turn, is provided by the sponsor companies. Besides this, the companies are allowed to compensate for additional expenses incurred by the students during the work placements.
Does the company provide a work place for the student?	Yes
Does the company have a contract with the students, or an agreement to hire the	There is no obligation for any of the parties. However, students are expected to consider first offers from the sponsor where they underwent work placements

students when they complete their studies?	
Is the company involved throughout the whole formative period?	Companies are sponsors of the program since the first year of the student. They are not directly involved with the student, but they are with the program

Table 8: Assessment of M10

Model ID	M10
Public/Private University	Public University
Stage	The collaboration can take place in three different ways and stages: (1) Curricular internship during the 4 <sup>th</sup> year; (2) Final year project; and (3) Extracurricular internship, usually at the end of 4 <sup>th</sup> year
Compulsory / Optional	The curricular internship during the 4 <sup>th</sup> year (1) is optional for the student. The Final year project (2) is mandatory, however, developing the work in collaboration with a research group in an industry-related problem is optional. Finally, the extracurricular internship (3) is optional
Paid / Not paid	The model allows both student and HEI initiatives to collaborate. The topics of the projects are HEI initiative.
Student proposal / HEI proposal / Company proposal	The model allows both student and HEI initiatives to collaborate. The topics of the projects are HEI initiative.
HEI tutor role / Company tutor role and department	There is no company tutor, all the coordination and supervision is performed by the HEI tutor.
Duration	It varies according to stage's variety. <ol style="list-style-type: none"> <li>1. Curricular internship during the 4<sup>th</sup> year: 200 hours.</li> <li>2. Final year project: 6 academic credits.</li> <li>3. Extracurricular internship, usually at the end of 4<sup>th</sup> year: up to 9 months, 20 hours per week</li> </ol>
Who pays the student tuition?	Each student is responsible for their tuition. The paid internship of variant 3 is covered by HEI funds assigned to the research group.
Does the company provide a work place for the student?	No. The work is developed in the HEI facilities.
Does the company have a contract with the students, or an agreement to hire the students when they complete their studies?	There is no obligation for any of the parties
Is the company involved throughout the whole formative period?	No.



### 4.3. Assessment

No data, or just a bit of information, is currently available on participation in the full spectrum of work-integrated learning activities offered by HEIs. Given this gap, choose only one model is a complex issue. Each model has its own strengths and drawbacks. We consider that the best option is to offer a range of possibilities. Moreover, a good model could have different effects depending on the student, geographic location, type of company, etc.

Hence, a good option is to propose at least one model for each of the categories proposed in this document.

## 5. Conclusions

One of the main difficulties dealing with the analysis of types of cooperation between companies and HEIs has been the terminology. On occasions, the same terms are used with different semantics and normally according to geographic regions. To add more confusion, different terms are used to define the same concept (e.g. Co-ops and dual system).

Information available on the web is not in English or missing. It is important to remark that this study has been focused on those regions where the productive fabric includes SMEs and multinationals with cooperation willing and interested in the potential benefits that offer cooperation activities.

## References

- [1] Ali A. Houshmand, Constantine Papadakis (2007). One Century of Cooperative Education in the United States 1906-2006, Drexel University.
- [2] Linn, P I Howard, A Miller, E . (2004). Handbook for research in cooperative education and internship. NJ: Lawrence Erlbaum
- [3] CAFCE: Canadian association for co-operative education CAFCE [online] <http://www.cafce.ca/coop-defined.html>. Last access in February 2017.
- [4] Cooperative Education & Internship Association (CEIA), [online] <http://www.ceiainc.org/> , last access in February 2017. Last access in February 2017.
- [5] German Central Evaluation and Accreditation Agency (ZEVA) [online] <http://www.zeva.org/english-version/>. Last access in February 2017.
- [6] Association for Cooperative Education (ACE) [on line] <http://www.co-op.bc.ca>. Last access in February 2017.
- [7] Higher Education Quality Council of Ontario [on line] <http://www.heqco.ca/en-ca/Pages/Home.aspx>. Last access in February 2017.
- [8] Academica group. Taking a pulse of work-integrated learning in Canada. Business higher education roundtable [on line] <http://bher.ca/wp-content/uploads/2016/10/BHER-Academica-report-full.pdf>. Last access in February 2017.
- [9] Dieter Euler, (2013) "Germany's Dual Vocational Training System: A Model for Other Countries?", Bertelsmann Stiftung, UNEVOC Library Catalogue ID 4322, [available at]:[https://www.bertelsmann-stiftung.de/fileadmin/files/BSt/Publikationen/GrauePublikationen/GP\\_Germanys\\_dual\\_vocational\\_training\\_system.pdf](https://www.bertelsmann-stiftung.de/fileadmin/files/BSt/Publikationen/GrauePublikationen/GP_Germanys_dual_vocational_training_system.pdf) . Last access in February 2017.
- Stirling, A., Kerr, G., Banwell, J., MacPherson, E., Bandy, A., & Battaglia, A. (2014). What is an Internship? An Inventory and Analysis of "Internship" Opportunities Available to Ontario Postsecondary Students. Toronto: Higher Education Quality Council of Ontario.
- [10] Butin, D. (2006). The limits of service-learning in higher education. The Review of Higher Education, 29 (4), 473-498.
- [11] Duale Hochschule Baden-Württemberg [on line] <http://www.dhbw.de/english/programmes-listing.html#course-0>. Last access in February 2017.
- [12] Hochschule Esslingen [on line] <http://www.hs-esslingen.de/en/the-university/faculties/mechatronics-and-electrical-engineering/study-programs/bachelor/dual-study-programs/study-program-mechatronicsplus.html>
- [13] CornellEngineering [on line] [https://www.engineering.cornell.edu/academics/undergraduate/special\\_programs/coop/](https://www.engineering.cornell.edu/academics/undergraduate/special_programs/coop/). Last access in February 2017.
- [14] Waterloo co-op model, [online] <https://uwaterloo.ca/co-operative-education/about-co-operative-education>. Last access in February 2017.



- [15] Mechatronics Com program, Hochschule Esslingen [on line] [http://webcache.googleusercontent.com/search?q=cache:https://secure.bmwgroup.com/en/careers/school-pupils/bachelor-programme-speedup/index.html&gws\\_rd=cr&ei=is-uWKqCO8HcaLTCO9AD](http://webcache.googleusercontent.com/search?q=cache:https://secure.bmwgroup.com/en/careers/school-pupils/bachelor-programme-speedup/index.html&gws_rd=cr&ei=is-uWKqCO8HcaLTCO9AD). Last access in February 2017.
- [16] Lockheed-Martin, [online] <http://career.ucf.edu/lockheed-martin>. Last access in February 2017.
- [17] Siemens Canada Engineering and Technology Academy [online] <https://www.siemens.ca>. Last access in February 2017.
- [18] Intel-Germany [online] <http://www.intel.com/content/www/us/en/jobs/locations/germany/students/degree-program-internships.html>. Last access in February 2017.
- [19] Intel-Ireland [online] <http://www.intel.com/content/www/us/en/jobs/locations/ireland/students/internships/degree-program-internships.html>. Last access in February 2017.
- [20] Intel-Finland [online] <http://www.intel.com/content/www/us/en/jobs/locations/finland/students/internship-programme.html>. Last access in February 2017.
- [21] FH Vorarlberg University of Applied Sciences (Electrical Engineering Duals BSc) internship program [on line] <http://www.fhv.at/en/studies/engineering-technology/>
- [22] University of Saskatchewan Engineering Professional [online] <http://engineering.usask.ca/internship/prospective-students.php>. Last access in February 2017.
- [23] University of New South Wales offers the UNSW Co-op program [online] [https://www.coop.unsw.edu.au/sites/default/files/download/IT\\_Placement\\_Guidelines.pdf](https://www.coop.unsw.edu.au/sites/default/files/download/IT_Placement_Guidelines.pdf). Last access in February 2017.
- [24] University of Jaén [online] <http://icaro.ual.es/ujaen>. Last access in February 2017.
- [25] Work Integrated Learning Program in SCETA [online] <https://www.siemens.ca/web/portal/en/SCETA/Work-Integrated-Learning-Program/Pages/WILP.aspx>. Last access in February 2017.